

### REMARKS

Claims 1-66, all the claims pending in the application, are amended herein. Claims 1-5, 14-27, 36-49 and 58-66 stand rejected on prior art grounds. Applicants respectfully traverse these objections/rejections based on the following discussion.

#### **I. The 35 U.S.C. §101 Rejections**

##### **1. The Position in the Office Action**

Claims 1-66 stand rejected under 35 U.S.C. §101 because, according to the Office Action, the claimed invention lacks patentably utility. The Office Action states that claims 1-66 involve the manipulation of an abstract idea (the manipulation of data points) but does not claim any result from this manipulation which is useful, concrete or tangible. The Office Action indicates that the clustered data of claims 1, 23, and 45 is not being used for anything. Applicants respectfully traverse these rejections based on the following discussion.

##### **2. Applicants' Response**

As amended independent claims 1, 23, and 45 contain features, which include statutory patentable subject matter. In particular, claim 1 provides, "[a] method for clustering data points with defined quantified relationships between them comprising: obtaining a lead value for each data point, wherein said lead value is derived from any of said quantified relationships and as given input, ranking each data point in a lead value sequence list in descending order of lead value, assigning a first data point in said lead value sequence list as a leader of a first cluster, considering each subsequent data point in said lead value sequence list as a leader of a new cluster if its relationship with leaders of each of the previous clusters is less than a defined

threshold value or as a member of at least one cluster where its relationship with a cluster leader is at least equal to said threshold value, and generating a text summarization of any of a single document and a collection of documents based on said clustering of data points.”

Likewise, claim 23 recites, “[a] system for clustering data points with defined quantified relationships between them, said system comprising: means for obtaining a lead value for each data point, wherein said lead value is derived from any of said quantified relationships and as given input, means for ranking each data point in a lead value sequence list in descending order of lead value, means for assigning a first data point in said lead value sequence list as a leader of a first cluster, means for considering each subsequent data point in said lead value sequence list as a leader of a new cluster if its relationship with leaders of each of the previous clusters is less than a defined threshold value or as a member of at least one cluster where its relationship with a cluster leader is at least equal to said threshold value, and means for generating a text summarization of any of a single document and a collection of documents based on said clustering of data points.”

Similarly, claim 45 provides, “[a] computer program product comprising computer readable program code stored on computer readable storage medium embodied therein for clustering data points with defined quantified relationships between them, comprising: computer readable program code means configured for obtaining a lead value for each data point, wherein said lead value is derived from any of said quantified relationships and as given input, computer readable program code means configured for ranking each data point in a lead value sequence list in descending order of lead value, computer readable program code means configured for assigning a first data point in said lead value sequence list as a leader of a first cluster, computer readable program code means configured for considering each subsequent data point in said lead

value sequence list as a leader of a new cluster if its relationship with leaders of each of the previous clusters is less than a defined threshold value or as a member of at least one cluster where its relationship with a cluster leader is at least equal to said threshold value, and computer readable program code means configured for generating a text summarization of any of a single document and a collection of documents based on said clustering of data points."

Therefore, as amended, independent claims 1, 23, and 45 contain a positively recited tangible result; specifically, the generation of a text summarization of a single document or a collection of documents based on the clustering of data points. Moreover, the specification as originally filed is replete with language describing the preferred embodiments of the invention, and in particular of implementing the claimed processes and system and achieving the tangible results of text summarization as applied in web personalization and product cataloging (see pages 15-22 of the specification). Such processes can only be performed by the specified physical elements, such as the processes and system means, etc., and their equivalents, described in the specification.

Contrary to the assertion in the Office Action, the claimed processes are not merely manipulations of abstract ideas because only computer means capable of manipulating data in the manner provided by the invention could be capable of performing the underlying processes to achieve the tangible results provided by the claimed invention. Again, the claimed invention does indeed attain a useful and tangible result; i.e., generating text summarization from either a single document or a collection of documents. In fact, those skilled in the art would readily acknowledge the usefulness of the claimed invention in this particular art field as it provides a significant step forward in the field of web design and e-commerce. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

## II. The Prior Art Rejections

Claims 1-5, 14-27, 36-49 and 58-66 stand rejected under 35 U.S.C. §102(e) as being anticipated by Nakao et al. (U.S. Patent No. 6,141,443), hereinafter referred to as "Nakao".

Applicants respectfully traverse these rejections based on the following discussion.

Nakao teaches a character extraction apparatus for extracting character data for each character from a text image which is represented by first pixels corresponding to character images and second pixels corresponding to background images. The character extraction apparatus comprises a character row detecting means for detecting character rows from the text image and obtaining position data of each character row; a pixel array extracting means for extracting arrays of continuous first pixels in an area specified by the character row position data and computing position data of each of the arrays of continuous first pixels; a character array linking means for linking the arrays of continuous first pixels in the area based on the position data of the arrays of continuous first pixels; and a character extracting means for recognizing each set of arrays of continuous first pixels linked by the character array linking means as a character and outputting character data.

However, the amended claims differ from Nakao, which relates only to character recognition. The claimed invention relates to unsupervised learning, namely clustering a given set of data points. Conversely, Nakao deals with supervised learning, namely given a set of labeled data points, the system would predict the label of a data point whose label is unknown.

In Nakao, each character is compared with labeled ("R", "P", "F", etc in the example) clusters in similarity. Based on this similarity each character is assigned to appropriate cluster. Before they compute the similarity, the labeled clusters are formed from the labeled data points

(images representing a particular letter in the example). Whereas, in the claimed invention, the Applicants are proposing a new way of clustering unlabeled data points, wherein the purpose of finding the similarity is different in the claimed invention compared with Nakao.

Furthermore, in Nakao, each character is assigned a lead value, which is the same as its similarity. This lead value depends on the character; cluster pair. Whereas, the lead value in the claimed invention is defined for every data point. Moreover, these lead values are not the similarity. In fact, they may depend on the data point's similarity with other data points.

As such, the Applicants contend that Nakao does not teach "[a] method for clustering data points with defined quantified relationships between them comprising: obtaining a lead value for each data point, wherein said lead value is derived from any of said quantified relationships and as given input, ranking each data point in a lead value sequence list in descending order of lead value, assigning a first data point in said lead value sequence list as a leader of a first cluster, considering each subsequent data point in said lead value sequence list as a leader of a new cluster if its relationship with leaders of each of the previous clusters is less than a defined threshold value or as a member of at least one cluster where its relationship with a cluster leader is at least equal to said threshold value, and generating a text summarization of any of a single document and a collection of documents based on said clustering of data points" as claimed in amended independent claim 1, and similarly recited in independent claims 23 and 45.

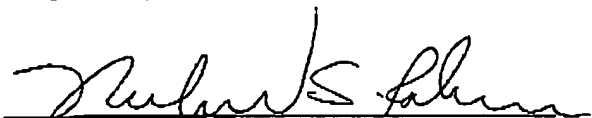
In view of the foregoing, the Applicants respectfully submit that the features defined by amended independent claims 1, 23, and 45 contain patentable subject matter and as such, claims 1, 23, and 45 are patentable. Further, dependent claims 2-22, 24-44, and 46-66 are similarly patentable not only by virtue of their dependency from patentable independent claims, respectively, but also by virtue of the additional features of the invention they define. Thus, the

Applicants respectfully request that these rejections be reconsidered and withdrawn. Moreover, the Applicants note that all claims are properly supported in the specification and accompanying drawings, and no new matter is being added. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections.

### III. Formal Matters and Conclusion

With respect to the rejections to the claims, the claims have been amended, above, to overcome these rejections. Therefore, the Examiner is respectfully requested to reconsider and withdraw the rejections to the claims. In view of the foregoing, Applicants submit that claims 1-66, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time. Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary. Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0441.

Respectfully submitted,



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